CENTENNIAL EXHIBITION, 1876.

CAMBRIA IRON COMPANY,

MANUFACTURER OF

IRON AND STEEL

RAILWAY BARS,

Johnstown,

CAMBRIA COUNTY, PENN'A.

OFFICE:
218 SOUTH FOURTH ST.,
PHILADELPHIA.

E. Y. TOWNSEND, President.

CHAS. S. WURTS, Vice President.

JOHN T. KILLÉ, Secretary and Treasurer.

OFFICE:
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D. J. MORRELL, General Manager.

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DESCRIPTION OF EXHIBIT.

METALS AND MANUFACTURES

In Main Building, T. 65.

A pyramid, constructed of sixty different sections of iron and steel rails; iron and steel representing the various stages of manufacture; bars and rails showing tests by tortions, compressions, tensile strains, and abrasions in actual service; with record of chemical and mechanical tests and analyses: also, photographic views of machinery, buildings, and materials; statistics of production; and diagrams of sections, with record of distribution of rails to consumers.

MINERALS AND MATERIALS

In Main Building (Annex), W. 66.

An arch, exhibiting pig metal from which the iron and steel rails of the Company are made, and exhibiting, also, the ores, fuels, and fluxes used in the manufacture of the same; viz., carbonates of iron, hematite, levant, and other fossil ores used in making metal for iron rails; and limonite, manganiferous, specular, and magnetic ores used in making metal for steel rails. Also limestones, calcitic and dolomite; fuels, viz., cokes and semi-bituminous coals; refractory materials, viz., fire-clay and ganister. Also photographic views of mines and mining machinery; methods of preparing ores and fuels; plans of workings; geological sections; statistics of area, production, etc.

PLACE OF PRODUCTION.

Rails, and iron and steel in various forms, at Johnstown, Pa; spiegeleisen, at Frankstown, Pa.; pig iron, at Johnstown, Bennington, Pa., and Hollidaysburg, Pa.; fossil ores at Frankstown; fossil and levant ores, near Marklesburg, Pa.; soft and hard fossil ores at Hopewell, Pa.; carbonates of iron at Johnstown; hematite

ores at Huntingdon County, Pa.; limonites, at Springfield, Pa.; manganiferous ores at Henrietta; limestone, at Blair County, Pa.; coal and coke at Johnstown, Bennington, and Broad Top, Pa.; fire-clay at Johnstown and Springfield, and ganister at Blair County—all being from the mines and works of Cambria Iron Company, which also uses, as mixtures, specular and magnetic ores from Republic, and other mines, Michigan, and manganiferous ores imported from Spain.

RECORD OF THE ACTUAL SERVICE IN TRACK PERFORMED BY CAMBRIA IRON RAILS, EXHIBITED AS ABOVE.

No. 1 was eleven years in north main track of Pennsylvania Railroad, near New Florence, Pa., on a down grade. During that time 34,432,060 tons passed over it. Its original weight was 67 lbs. per lineal yard, and it lost in weight by wear in that service 3 713-1000 per cent

No. 2 was eleven years in south main track of Pennsylvania Railroad, near New Florence, Pa., on an up grade. During that time 46,117,721 tons passed over it. Its original weight was 64 lbs. per lineal yard, and it lost in weight by wear in that service 5 218-1000 per cent.

No. 3 was eleven years in north main track of Pennsylvania Railroad, near New Florence, Pa., on a down grade. During that time 34,432,060 tons passed over it. Its original weight was 67 lbs. per lineal yard, and it lost in weight by wear in that service 6 052-1000 per cent.

No. 4 was ten years in north main track of Pennsylvania Railroad, near 170th Mile Post, on an up grade. During that time 40,827,000 tons passed over it. Its original weight was 67 lbs. per lineal yard, and it lost in weight by wear in that service 2 352-1000 per cent.

No. 5 was ten years in north main track of Pennsylvania Railroad, near 170th Mile Post, on an up grade. During that time 40,827,000 tons passed over it. Its original weight was 67 lbs. per lineal yard, and it lost in weight by wear in that service 2 352-1000 per cent.

No. 6 was nineteen years in main track of Dayton & Michigan

Railroad. (Have not been able to obtain record of tonnage service performed.) Its original weight was 56 lbs. per lineal yard, and it lost in weight by wear in that service 4 762-1000 per cent.

No. 9 was ten years in north main track of Pennsylvania Railroad, near 170th Mile Post, on an up grade. During that time 40,827,000 tons passed over it. Its original weight was 67 lbs. per lineal yard, and it lost in weight by wear in that service 2 352-1000 per cent.

No. 10 was ten years in north main track of Pennsylvania Railroad, near 170th Mile Post, on an up grade. During that time 40,827,000 tons passed over it. Its original weight was 67 lbs. per lineal yard, and it lost in weight by wear in that service 2 352-1000 per cent.

No. 11 was ten years in north main track of Pennsylvania Railroad, near 170th Mile Post, on an up grade. During that time 40,827,000 tons passed over it. Its original weight was 67 lbs per lineal yard, and it lost in weight by wear in that service 2 352-1000 per cent.

Two iron rails which bridged a gap 12 feet wide and 12 feet deep, washed out under the track of the G. R. & Ft. W. R. R., and carried safely an engine weighing 57,400 lbs., and a train of seven cars.

HISTORY AND STATISTICS.

The Cambria Iron Company was organized under the General Iron-Manufacturing Law of the State of Pennsylvania of 1836; its charter is dated August 21, 1852, and it has received numerous additional powers and privileges by special acts of the Legislature. The early operations of the Company were unsuccessful, and its works were leased to Wood, Morrell & Co. in 1855, at which time Daniel J. Morrell removed from Philadelphia to Johnstown, and became General Superintendent. Wood, Morrell & Co. built up a large and profitable business, and made important improvements in the works, and, at the termination of the lease, in 1862, the Company was reorganized, and the business has since been carried on in its name. Charles S. Wood was elected President, E. Y. Townsend Vice President, and John T. Killé Secretary; D. J. Morrell con-

tinuing in the management at Johnstown. Upon the death of Charles S. Wood, in 1873, the organization was constituted as it is at present, viz: E. Y. Townsend, President; Chas. S. Wurts, Vice President; J. T. Killé, Secretary and Treasurer, and D. J. Morrell, General Manager at Johnstown. Of the original Directors elected at the reorganization of the Company, Richard Wood and Charles S. Wood are dead, and George L. Oliver, John M. Kennedy, George Trotter, E. Y. Townsend, and D. J. Morrell are still in the management, having Samuel Welsh, Samuel J. Reeves, Chas. S. Wurts, and Henry Lewis associated with them as Directors.

The mills of the Company and four of its furnaces are at Johnstown, Pennsylvania, on the line of the Pennsylvania Railroad, 78 miles east of Pittsburgh. The ore of this locality produces a quality of iron which is specially adapted for service in a railroad bar; and this, in connection with large deposits of coal, fire-clay, and cement, gives to Johnstown peculiar advantages for the manufacture of iron and steel rails. The town and adjoining boroughs contain about 16,000 inhabitants, of various nationalities, the largest number of foreign birth being Irish, Welsh, and German. There are about five thousand workmen and employés in the various departments of the Company's business. Males only are employed in the mines and iron and steel mills, but the woolen mills of the Johnstown Manufacturing Company, operated by Wood, Morrell & Co., at Woodvale, give work to a large number of women and girls. The place is noted for healthfulness, and the good order, thrift, and contentment of the people.

The Centennial exhibition of the Company, heretofore described, shows, fully and fairly, average specimens of its various materials and manufactured products, and the extent of the possessions of the Company is indicated by the places of their production. Manufacturing operations are conducted in the counties of Cambria and Blair, and mining in Cambria, Blair, Bedford, and Huntingdon. The Company has four blast furnaces in operation at Johnstown, and one at Conemaugh. The four furnaces east of the mountain, one at Bennington, two at Hollidaysburg, and one at Frankstown, operated in the name of Blair Iron and Coal Company, are under the General Manager of Cambria Iron Company. The Company

is erecting, and will soon put in blast, a new furnace, at Johnstown, having all the modern improvements, and of the estimated capacity of 100 tons of metal per day. The manufacture of spiegeleisen, largely from native ores, which was successfully inaugurated at Frankstown, will be carried on at Conemaugh Furnace, which has been thoroughly refitted for this purpose. The Bessemer steel works, blooming mill, rolling mills, machine shops, foundry, and other shops and buildings at Johnstown, extend over sixty acres of land, the rolling mills covering seven acres. The rolling mill contains seven trains of rolls, twenty-eight heating furnaces, and forty-two double puddling furnaces. It was burned in 1857, and again in 1872, and in each instance was at once rebuilt. Such were the resources of the Company, the energy of the management, and the co-operation of the employés of the Company, that within one week after the last fire all the machinery of the mill was in full operation, under temporary shelter, which was replaced by permanent buildings without stopping a wheel or injuring a workman. The water works now completed will be a defense against like calamities in future.

The Bessemer plant contains two five-ton converters, arranged on the most improved American plan, with a capacity and effectiveness not known in Europe. Numerous improvements upon the machinery and process have been made at Cambria Works, chief of which is the blooming mill for the reduction of steel ingots, invented by George Fritz, formerly Chief Engineer of the Company, who is now deceased.

The Company has about twenty miles of railroad, of ordinary gauge, in, about, and connecting its works, and as many miles of narrow-gauge track in its mines, and thirteen locomotives are kept in constant service.

The lands of the Company in the counties of Cambria, Indiana, Westmoreland, Somerset, Bedford, Blair, and Huntingdon, aggregate forty-six thousand four hundred and three acres, forty-one thousand of which contain minerals.

The estimate of the mineral resources of the Company, in tons, made by John Fulton, Esq., Mining Engineer, is as follows: Coal, 350,000,000; iron ores—carbonates, 17,000,000; red hematite, fossil,

1,927,000; brown hematite, limonite, 5,176,000; fire-clay, 75,000,000. The Company also owns large deposits of superior ganister.

The stock of Cambria Iron Company, amounting now to $3,000,000, was originally divided in shares of $12 50 each, and, under a resolution of the stockholders, will be raised to the par value of $50, by consolidation of four shares of the original stock into one share of new stock. There is no bonded debt, and no floating debt beyond what is settled and paid at the end of each month, in the usual course of business.

Beginning with a product of 10,000 tons of rails in 1855, the Company has made, year by year, one-tenth of the total product of American rails, its contribution up to this time being more than a million of tons, and the works now have the capacity to produce a hundred thousand tons of iron and steel rails per annum.

Cambria steel rails were first made in 1871, and were sold in 1873 at $125 per ton, which was then about the ruling price of English steel rails. The difference between that and the present price of steel rails is an evidence of the skill and economy developed in the management of this new industry, and illustrates the advantages to consumers which always result from protection to home labor.

Mindful of the importance of extending the uses of Bessemer steel, the Company is preparing to place a portion of its product upon the market in the form of wire, screws, and other articles for which Bessemer steel is better suited than iron. While doing this the Company proposes to maintain and improve the character of its rails, to meet the market in its prices, and to retain its customers, and confidently refers to the railroad companies of the United States for evidence of the superior quality of its rails.